R1 Type		Performance Parameter		conversion factor		GJ
Ep	Electrical Power Production	181,688.3	MWh/a	2.600		**1,700,602**
Ep	Heat (Commercial Use)	75,429.2	MWh/a	1.100		**298,700**
Ep	Heat (Own Use, not included)	103,471.8	MWh/a	1.100		**409,748**
	auxiliary fuel (oil)	19,418.3	MWh/a			
Ep	condensate return	6,233.9	MWh/a	-1.100		**-24,686**
Ef	Oil with heat recovery	9,709.1	MWh/a	1.000		**34,953**
Ei	Oil without heat recovery (shutdown, etc)	9,709.1	MWh/a	1.000		**34,953**
Ei	Parasitic Load during shutdown	350.4	MWh/a	2.600		**3,280**
Ew	Energy Input Waste	233,019.5	t/a	10.000	GJ/Mg	**2,330,195**
η	=(Ep - (Ef - Ei)) / (0,97 * (Ew + Ef))					**1.01**

Year	8,760	h/a	
Operational hours	7,884	h/a	
Auxiliary Fuel as Waste Input	3.00%	-	
R1 treshold (plant commissioned after 31.12.2008)	0.65	-	
LCV	10.04	GJ/Mg	
HCV	11.54	GJ/Mg	
Biodegradable fraction	50%	-	

				reference plant from ISDS2 submission
thermal load (LCV)	82.1	MW		82.1
thermal load (HCV)	94.4	MW		
lower caloric value	10.0	GJ/Mg		10
gross electric efficiency	30.4%	-		30.4%
availability	90.0%	-		90.0%
gross electrical production (max. no heat)	196,772	MWh/a		
throughput	233,020	t/a		
energy input (LCV)	647,276	MWh/a		
energy input (HCV)	743,981	MWh/a		
boiler efficiency	91.8%	-		91.8%
	0.905			
Own Use				
air pre-heating register 3	1.850	t/h		1.850
deaerator heating	3.870	t/h		3.870
air pre-heating register 2	3.610	t/h		3.610
air pre-heating register 1	2.170	t/h	correction factor own	2.170
condensate pre-heating	9.100	t/h	100.0%	9.100
commercial use	75,429	MWh/a		
use of heat system	4,482	h/a		
average steam demand	21.289	t/h		
max steam capacity	40.000	t/h		
(average steam demand reverse calculation)	10.000	t/h		
(average steam demand reverse calculation)	35,431	MWh/a		

turbine step efficiency	95.5%	-	
generator efficiency	99.0%	-	
parasitic load factor	10.0%	-	
Enthalpy			
steam production	3224.69	kJ/kg	61bar(a), 420°C
boiler hot water	622.13	kJ/kg	81bar(a), 145°C
turbine extraction 1	2845.86	kJ/kg	9bar(a), 198°C
turbine extraction 2	2747.92	kJ/kg	5,5bar(a), 155°C
turbine extraction 3	2509.68	kJ/kg	0,9bar(a), 96°C (x=9%)
turbine exit steam	2571.8	kJ/kg	0,07bar(a), 39°C
turbine exit water	163.4	kJ/kg	0,07bar(a), 39°C
turbine water fraction	14%	-	
turbine exit	2234.624	kJ/kg	
condensate	336	kJ/kg	
steam production boiler	104.253	t/h	
power production (reverse efficiency)	24.96	MW el.	
power production (no steam)	24.99	MW el.	
power loss	3.4	MW el.	
gross production	21.6	MW el.	
net production	19.1	MW el.	
parasitic load	2.5	MW el.	
parasitic load during shut down	0.4	MW el.	
Max Heat operation			
power loss (maxheat)	6.4	MW el.	
gross production (maxheat)	18.6	MW el.	
net production (maxheat)	16.1	MW el.	
High steam demand	15%	-	
power loss	3.9	MW el.	
gross production	21.1	MW el.	
net production	18.6	MW el.	
Low steam demand			
power loss	2.9	MW el.	
gross production	22.1	MW el.	
net production	19.6	MW el.	

own use heat		
air pre-heating register 2	11,530	MWh/a
deaerator heating	24,120	MWh/a
air pre-heating register 1	13,059	MWh/a
condensate pre-heating	54,763	MWh/a
commercial use heat	75,429	MWh/a
energy input waste	647,276	MWh/a
energy input fossil fuel	19,418	MWh/a
power import	350	MWh/a
condensate return	6,234	MWh/a
gross production max	197,005	MWh/a
power loss	15,317	MWh/a
gross production	181,688	MWh/a
net production	161,988	MWh/a
parasitic load	19,701	MWh/a

ROC Calculation		
CHP TPO	24.99	%
QI X	370	-
QI Y	140	-
QI Z Factor	5.7	
eta power	24.42%	-
eta heat	10.14%	-
QI	104.55	-
delta eta heat	0.00%	-
new eta heat	10.14%	-
delta eta power	0.00%	-
new eta power	24.42%	-
new heat / power	41.52%	-
CHP QPO	181,688	MWh/a
ROC	80,994	-
LEC Calculation		
Renewable LEC	90,844	-
CHP TPO	24.99	-
QI X	370	-
QI Y	120	-
QI Z Factor	5.7	-
eta power	24.42%	-
eta heat	10.14%	-
QI	102.52	
delta eta heat	0.00%	-
new eta heat	10.14%	-
delta eta power	0.00%	-
new eta power	24.42%	-
new heat / power	41.52%	-
CHP QPO	181,688	MWh/a
CHP LEC	181,688	-
LEC Total	181,688	-

Commercial DRDL		
Electrical Power Demand	163,000	MWh/a
Gas Demand	88,180	MWh Hs/a
Gas Demand Scaling Factor	100%	-
Steam Demand	75,429	MWh/a
Gas Boiler Efficiency	94%	-
Gas Factor Hi / Hs	0.91	-
Average Electrical Demand	18.61	MW
Deviation of Electrical Demand	15%	-
Average Gas Demand	19.67	MW
Average Steam Demand	16.05	MW
Average Steam Demand	20.30	t/h
Use of Heat System DRDL	4700	h/a
Use of heat System from EfW	4482	h/a
Steam Supply EfW	75,429	MWh/a
Steam Supply Babcock	0	MWh/a
Gas supply backup	0	MWh Hs/a
Gas supply Scaling Factor	100%	-
DRDL El. Power Supply EfW	141,486	MWh/a
DRDL El. Power Supply Import Grid	21,514	MWh/a
EfW El. Power Export	20,502	MWh/a
EfW Parasitic Load Produced	19,701	MWh/a
EfW Parasitic Load Import Grid	718	MWh/a
Total Import from Grid	22,232	MWh/a
Total Export to Grid	20,502	MWh/a
Control Net Production	WAHR	

R1 Type		Performance Parameter		conversion factor		GJ
Ep	Electrical Power Production	197,005.2	MWh/a	2.600		**1,843,969**
Ep	Heat (Commercial Use)	0.0	MWh/a	1.100		**0**
Ep	Heat (Own Use, not included)	103,471.8	MWh/a	1.100		**409,748**
	auxiliary fuel (oil)	19,418.3	MWh/a			
Ep	condensate return	0.0	MWh/a	-1.100		**0**
Ef	Oil with heat recovery	9,709.1	MWh/a	1.000		**34,953**
Ei	Oil without heat recovery (shutdown, etc)	9,709.1	MWh/a	1.000		**34,953**
Ei	Parasitic Load during shutdown	350.4	MWh/a	2.600		**3,280**
Ew	Energy Input Waste	233,019.5	t/a	10.000	GJ/Mg	**2,330,195**
η	=(Ep - (Ef - Ei)) / (0,97 * (Ew + Ef))					**0.95**

Year	8,760	h/a	
Operational hours	7,884	h/a	
Auxiliary Fuel as Waste Input	3.00%	-	
R1 treshold (plant commissioned after 31.12.2008)	0.65	-	
LCV	10.04	GJ/Mg	
HCV	11.54	GJ/Mg	
Biodegradable fraction	50%	-	

				reference plant from ISDS2 submission
thermal load (LCV)	82.1	MW		82.1
thermal load (HCV)	94.4	MW		
lower caloric value	10.0	GJ/Mg		10
gross electric efficiency	30.4%	-		30.4%
availability	90.0%	-		90.0%
gross electrical production (max. no heat)	196,772	MWh/a		
throughput	233,020	t/a		
energy input (LCV)	647,276	MWh/a		
energy input (HCV)	743,981	MWh/a		
boiler efficiency	91.8%	-		91.8%
	0.905			
Own Use				
air pre-heating register 3	1.850	t/h		1.850
deaerator heating	3.870	t/h		3.870
air pre-heating register 2	3.610	t/h		3.610
air pre-heating register 1	2.170	t/h	correction factor own	2.170
condensate pre-heating	9.100	t/h	100.0%	9.100
commercial use	0	MWh/a		
use of heat system	4,482	h/a		
average steam demand	0.000	t/h		
max steam capacity	40.000	t/h		
(average steam demand reverse calculation)	10.000	t/h		
(average steam demand reverse calculation)	35,431	MWh/a		

turbine step efficiency	95.5%	-
generator efficiency	99.0%	-
parasitic load factor	10.0%	-

Enthalpy			
steam production	3224.69	kJ/kg	61bar(a), 420°C
boiler hot water	622.13	kJ/kg	81bar(a), 145°C
turbine extraction 1	2845.86	kJ/kg	9bar(a), 198°C
turbine extraction 2	2747.92	kJ/kg	5,5bar(a), 155°C
turbine extraction 3	2509.68	kJ/kg	0,9bar(a), 96°C (x=9%)
turbine exit steam	2571.8	kJ/kg	0,07bar(a), 39°C
turbine exit water	163.4	kJ/kg	0,07bar(a), 39°C
turbine water fraction	14%	-	
turbine exit	2234.624	kJ/kg	
condensate	336	kJ/kg	
steam production boiler	104.253	t/h	
power production (reverse efficiency)	24.96	MW el.	
power production (no steam)	24.99	MW el.	
power loss	0.0	MW el.	
gross production	25.0	MW el.	
net production	22.5	MW el.	
parasitic load	2.5	MW el.	
parasitic load during shut down	0.4	MW el.	
Max Heat operation			
power loss (maxheat)	6.4	MW el.	
gross production (maxheat)	18.6	MW el.	
net production (maxheat)	16.1	MW el.	
High steam demand	15%	-	
power loss	0.0	MW el.	
gross production	25.0	MW el.	
net production	22.5	MW el.	
Low steam demand			
power loss	0.0	MW el.	
gross production	25.0	MW el.	
net production	22.5	MW el.	

own use heat		
air pre-heating register 2	11,530	MWh/a
deaerator heating	24,120	MWh/a
air pre-heating register 1	13,059	MWh/a
condensate pre-heating	54,763	MWh/a
commercial use heat	0	MWh/a
energy input waste	647,276	MWh/a
energy input fossil fuel	19,418	MWh/a
power import	350	MWh/a
condensate return	0	MWh/a
gross production max	197,005	MWh/a
power loss	0	MWh/a
gross production	197,005	MWh/a
net production	177,305	MWh/a
parasitic load	19,701	MWh/a

ROC Calculation		
CHP TPO	24.99	%
QI X	370	-
QI Y	140	-
QI Z Factor	5.7	
eta power	26.48%	-
eta heat	0.00%	-
QI	97.98	-
delta eta heat	2.70%	-

new eta heat	2.70%	-
delta eta power	0.47%	-
new eta power	26.95%	-
new heat / power	10.00%	-
CHP QPO	0	MWh/a
ROC	0	-
LEC Calculation		
Renewable LEC	98,503	-
CHP TPO	24.99	-
QI X	370	-
QI Y	120	-
QI Z Factor	5.7	-
eta power	26.48%	-
eta heat	0.00%	-
QI	97.98	
delta eta heat	3.67%	-
new eta heat	3.67%	-
delta eta power	0.64%	-
new eta power	27.12%	-
new heat / power	13.55%	-
CHP QPO	0	MWh/a
CHP LEC	0	-
LEC Total	98,503	-
Commercial DRDL		
Electrical Power Demand	163,000	MWh/a
Gas Demand	0	MWh Hs/a
Gas Demand Scaling Factor	100%	-
Steam Demand	0	MWh/a
Gas Boiler Efficiency	94%	-
Gas Factor Hi / Hs	0.91	-
Average Electrical Demand	18.61	MW
Deviation of Electrical Demand	15%	-
Average Gas Demand	0.00	MW
Average Steam Demand	0.00	MW
Average Steam Demand	0.00	t/h
Use of Heat System DRDL	4700	h/a
Use of heat System from EfW	4482	h/a
Steam Supply EfW	0	MWh/a
Steam Supply Babcock	0	MWh/a
Gas supply backup	0	MWh Hs/a
Gas supply Scaling Factor	100%	-
DRDL El. Power Supply EfW	146,700	MWh/a
DRDL El. Power Supply Import Grid	16,300	MWh/a
EfW El. Power Export	30,605	MWh/a
EfW Parasitic Load Produced	19,701	MWh/a
EfW Parasitic Load Import Grid	718	MWh/a
Total Import from Grid	17,018	MWh/a
Total Export to Grid	30,605	MWh/a
Control Net Production	WAHR	